ACC Innovation:

A world where innovation and knowledge optimize cardiovascular care and outcomes.
John Gordon Harold, MD
MACC, MACP, FESC, FRCPI, FRCP, FCSI, FCCP, FAHA
Past President
American College of Cardiology
Clinical Professor of Medicine
Cedars-Sinai Heart Institute
and David Geffen School of Medicine at UCLA

No Disclosures to Make
ACC California Chapter
Eleven Years of Achievement

Ramin Manshadi
Governor-Elect NC

Garwood Gee
President

Pranav Patel
Governor-Elect SC

Norman Lepor
Past President

Past Presidents
ACC California Chapter

Lianna Collinge, CAE
Chief Operating Officer
May 2006 - Present
The Mission of the American College of Cardiology is to Transform Cardiovascular Care and Improve Heart Health
Digital Transformation in Health: Technology enabled care, health promotion and disease prevention that advances the "Quadruple aim."

ACC
1949-2017
68 Years of Quality and Innovation
Heart House
Washington, DC
More than 85 Percent of US Cardiologists are ACC Members

48 Domestic Chapters

40 International Chapters

52,000+ with members across the entire Cardiovascular Care Team

More than 85 Percent of US Cardiologists are ACC Members

10 NCDR Registries

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Check out the new ACC.org Guidelines Hubs for all of the resources and tools you need
Helping hospitals and practices measure and improve the quality of care they provide.

- ACTION Registry™- GWTG™
- AFib Ablation Registry™
- CathPCI Registry®
- Diabetes Collaborative Registry®
- ICD Registry™
- IMPACT Registry®
- LAAO Registry™
- PINNACLE Registry®
- PV1 Registry™
- STS/ACC TVT Registry™

CVQuality.ACC.org/NCDR
Where Does the NCDR Data Come From?

More than 2,500 hospitals and 3,500 outpatient providers nationwide participate in the NCDR by providing real-time patient data on specific cardiac conditions.
Introduction of ACC Digital Strategy
ACC.14
It's tough to make predictions, especially about the future."~Yogi Berra
“A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be.”

- Wayne Gretzky
What got you here won’t get you there
"You can't connect the dots looking forward; you can only connect them looking backwards. So you have to trust that the dots will somehow connect in your future."

Steve Jobs
1955-2011

Think Different Now
The Digital Revolution and Cardiology

Technology is Transforming Health Care

• Convergence between medicine and wireless technology had led to disruptive innovation and the transformation of health care

• New trends: wireless health, mobile health, personalized medicine, preventive care
Since 2007, billion replaced

Digital Revolution
Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations

Accelerations:
- Moore’s Law
- Globalization
- Climate Change
Gordon Moore, co-founder of Intel, in a 1965 paper stated that the number of transistors that can be etched on a given surface area of silicon would double every year – Exponential growth since…

Moore’s Law 50th Anniversary 1965-2015
Today’s Clinician-Patient Relationship

WOW! YOUR CHOLESTEROL HAS ME REALLY WORRIED!

GACK!

UH... YOU MIGHT WANT TO ACTUALLY LOOK AT THE PATIENT...
The wonder drug

A digital revolution in health care is speeding up

Telemedicine, predictive diagnostics, wearable sensors and a host of new apps will transform how people manage their health

Adrenaline rush
United States, digital health startup funding, $bn

Source: Accenture

Economist. March 2, 2017
Health Technology Startups Are Creating New Businesses
What amazed me on my visit to #himss17 was the abundance of hype, the paucity of evidence... and the distance from real world practice.
Future of Digital Health

• Evolution of the Electronic Health Record (EHR) into the Comprehensive Health Record (CHR) including social determinants of health

• Integration of digital tools into health care

• Design and development of digital health tools at the interface between patients, families and clinicians
The Learning Healthcare System and Cardiovascular Care
A Scientific Statement From the American Heart Association

ABSTRACT: The learning healthcare system uses health information technology and the health data infrastructure to apply scientific evidence at the point of clinical care while simultaneously collecting insights from that care to promote innovation in optimal healthcare delivery and to fuel new scientific discovery. To achieve these goals, the learning healthcare system requires systematic redesign of the current healthcare system, focusing on 4 major domains: science and informatics, patient-clinician partnerships, incentives, and development of a continuous learning culture. This scientific statement provides an overview of how these learning healthcare system domains can be realized in cardiovascular disease care. Current cardiovascular disease care innovations in informatics, data use, patient engagement, continuous learning culture, and incentives are profiled. In addition, recommendations for next steps for the development of a learning healthcare system in cardiovascular care are presented.

Health care has never been more complex. Clinicians and patients must make decisions that integrate the continually evolving scientific evidence base with hundreds of individual data points such as patients’ vital signs, symptoms, comorbidities, medications, test results, and preferences. Furthermore, once these decisions are made, little information is available about their impact, limiting the ability to learn from and ultimately improve care delivery. This inability of the healthcare system to learn from its operation results in significant inefficiencies, substantial costs, and suboptimal health outcomes.

The creation of a learning healthcare system (LHS) can potentially address these issues. The LHS uses health information technology and the health data infrastructure to apply scientific evidence at the point of clinical care while simultaneously collecting insights from that care to promote innovation in optimal healthcare delivery and to fuel new scientific discovery. In particular, the LHS enables rapid, iterative learning in which “evidence informs practice, and practice informs evidence.”

In 2012, the National Academy of Medicine issued a report titled Best Care at Lower Cost: The Path to Continuously Learning Health Care in America that outlined the rationale and structure for the LHS. The authors argued that recent advances in information processing and connectivity, healthcare organizational design, and reimbursement policies centered on quality rather than quantity of care provided the necessary tools for the creation of the LHS. Accordingly, they called for systematic redesign of the healthcare system, focusing on 4 major domains: science and informatics, patient-clinician partnerships, incentives, and development of a continuous learning culture.

Key Words: AHA Scientific Statements • Cardiovascular disease • Delivery of healthcare • Information technology • Learning • Science • Technology

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FDA Approves First Digital Pill - Abilify MyCite

BIOSENSING WATCH FOR MEDICAL DATA
Verily, a subsidiary of Alphabet and owned by Google, has released a new device to capture health data for clinical research and monitoring medical care.

- **Biosensors**: Measure cardiopulmonary rates for studies of heart, lung and movement disorders such as Parkinson’s disease.
- **Data storage**: Can save data for weeks; less frequent need for uploading data.
- **Battery life**: Up to one week
- **Date and time**: is the only information displayed.
- **Design**: Stylish looking to promote consistent wearing

Source: Verily
Healthcare is undergoing radical transformation. New players and partnerships are emerging, blurring industry lines and spurring innovation.
The ACC Vision

A world where innovation and knowledge optimize cardiovascular care and outcomes.
Innovation at ACC
Dr. John Rumsfeld
Named ACC Chief Innovation Officer 2015
• “Advances in technology and major changes in the current healthcare environment create a need—and opportunity—to identify and implement innovative ways to advance cardiovascular medicine... there are massive opportunities to integrate innovation to propel cardiovascular care.

• The ACC is in an ideal position for this, as the home for cardiovascular professionals and as a leader in science, quality, and education.” John Rumsfeld, MD
Innovation at ACC

• New Innovation Agenda

• Design and execute a new innovation strategy

• Focus on the meaningful transformation of health care to improve health outcomes

• Digital Health Tools

• Professional Development of members with interest in digital health
ACC Innovation Strategy

• Novel partnerships with the Technology Sector
• Designing digital health solutions from scratch
• Focus on health rather then disease
Focus on Digital Health

- Data Analytics
- Machine learning and artificial intelligence
- Precision Medicine – more tailored therapies based on best available data
- Mobile Health
- Wearable sensors
CA ACC TECH SYMPOSIUM 2017
FUTURE INNOVATIONS: THE PROMISE AND PERIL OF DIGITAL MEDICINE
June 10, 2017 // One Market, San Francisco

Cardiologists gather to debate the future of their discipline:

- Artificial Intelligence
- Genomics
- Remote Monitoring
- Translating Data to Practice
- Privacy and Data Security
- Wearables

Speakers:
- Vic Gundotra
- Michael McConnell
- Abdul Halabi
- Anna Shcherbina
- Szilard Vondrak
- Steve Selkowitz
- William Abraham

Committee chairs:
- Raj Khazarian MD MA FACC
- Seema Pursnani MD MPH FACC
- Riguved Tadwalkar MD MS FACC

Panel moderator:
- Edward Huse MD PhD FACC

Innovations:
- AliveCor

www.caacc.org/techsymposium.html

INNOVATION@ACC
Population Health Management

Digital Health

Care Delivery Innovation

Health Analytics (AI, big data)

Precision Health

Health Tech R & D

Population Health Management

ACC: Lead Facilitate Partner

INNOVATION@ACC
Lead and Convene

• Innovation agenda goal—transform care and improve health outcomes
• Develop new roadmaps to facilitate Innovation in cardiovascular care
• Customize IT solutions that meet the needs of clinicians and patients
Institute for Computational Cardiovascular Health
Facilitate

- Professional community and career development in Digital Health
- Convene/Crowdsourse
- Networks
- Innovation Section
New: ACC Healthcare Innovation Section
New ACC Workgroup Unites Health Care Innovators

The ACC has created a new interdisciplinary workgroup dedicated to supporting the transformation of cardiovascular care to improve quality of care and patient outcomes. The Health Care Innovation Workgroup, which will evolve into a member section, will serve as a professional home for ACC members who are engaged in innovation, technology and entrepreneurship, with a specific focus on career development. Workgroup activities will include exploring innovations related to digital health, health technology, health care analytics and precision medicine that have the potential to transform cardiovascular care and improve heart health. The Workgroup will also help facilitate ACC’s ‘thought leadership’ position in relation to the evaluation and implementation of health care innovations, and will strive to help keep members as up-to-date as possible with regard to health technologies.
Partner

- Innovation projects
- New partnerships and outreach
- Co-creation
In an increasingly connected world, interorganizational collaboration is vital to solve global problems...

Thinking globally to transform cardiovascular care
The Lancet, Volume 384, Issue 9941, Pages 379-380
Patrick T O’Gara, John Gordon Harold, William A Zoghbi

ACC: Thinking Globally
To Transform Cardiovascular Care
The ACC and Google

Engaging Patients to Promote Guideline-Based Care

Patrick T. O’Gara, MD, MACC, ACC Immediate Past-President
Kapil Parakh, MD, MPH, PhD, FACC, Senior Program Manager, Google
John S. Rumsfeld, MD, PhD, FACC, Chief Innovation Officer, American College of Cardiology

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The ACC and ANGELMD recently announced a new partnership to promote engagement of cardiovascular clinicians in health care innovation and entrepreneurship. The partnership is designed to help increase the exchange of knowledge in cultivating, advising, evaluating and investing in the most relevant technology solutions within cardiovascular health.
Start-up company (‘newco’) • Artificial Intelligence • Machine Learning • Big Data • Precision Medicine
“People don’t want more health care – they want better health” – Dr. Nirav Shah
"The best way to predict the future, is to create it."

Peter Drucker
INNOVATION@ACC

ACC Innovation:
A World
Where Innovation and
Knowledge Optimize
Cardiovascular Care

John Gordon Harold, MD
Past President
American College of Cardiology

Moving Cardiovascular Care FORWARD